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NRO REVIEW COMPLETED

2 July 1962

MEMORANDUM FOR : Deputy Director (Research)

SUBJECT : ARCON Readiness

1. A conference was held on 28 June 1962 with Army, Air Force and the ARCON contractors to review progress on the solution of problem areas.

2. In brief, the following items were discussed and action, as indicated, was recommended:

A. Stellar Exposure Test With CORONA Horizon Photography: Mission 9037 had one set of horizon optics set at 1/25th of a second and the red filter removed. A few samples of this material were hand carried by NFIC personnel to this meeting. The immediate readout showed that stellar images were not obvious. AMS is evaluating these items to verify or deny stellar acquisition. The stellar photos that were acquired on 9032 were not obvious either, at first, so we may not know about this item for several more days and we may have to wait until the original negative of 9037 is delivered. AMS was also requested to go back through Mission 9029, especially the horizon photography on SC-130 emulsion, and attempt to identify stars. We do not have a satisfactory answer to this problem as yet and plan further testing with one set of CORONA horizon optics. While the optics are different, we should be able to arrive at some basic exposure data.

B. Flare Test: LMSC reported the results of a simulated flare test run on the ARCON camera system at Palo Alto. The test verified the critical nature of flare on the density of the image. Several baffles were tested to reduce flare and it was determined that the best compromise is a "D" shaped baffle which only cuts off a small portion of the bottom of the horizon with vignetting only up to 10 degrees. The best baffle is a circular one, but this would cut out most of the stars and was obviously unacceptable.

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C. Aperture Reduction: There was an unconfirmed report that stopping down the aperture on the terrain lens might actually increase the over-all resolution about 10 to 15 lines/mm. This is a second choice over changing film type (SO-162 to SO-130) to resolve the exposure problem with a fixed 1/500 of a second terrain shutter. Fairchild was instructed to test a lens to verify resolution improvement. An available aperture stop was reviewed and approved for use, if the stellar exposure tests result in a decision to use SO-162 rather than SO-130. This is a simple fixed installation and would not effect reliability. Decision will be deferred until tests are made.

3. This outlines the more important items under study at present and points out the need for more time to verify tests prior to committing another ARGOH to flight. Another general technical meeting is planned for 12 July in Washington.

JAMES A. CUNNINGHAM, JR.
Acting Assistant Director
(Special Activities)

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